**City of Santa Barbara**
Parks and Recreation Department

**Memorandum**

**DATE:** April 18, 2012

**TO:** Creeks Restoration/Water Quality Improvement Program
Citizen Advisory Committee

**FROM:** Jill Murray, Creeks Research Coordinator

**SUBJECT:** **SOUTHERN COASTAL SANTA BARBARA CREEKS BIOASSESSMENT PROGRAM AND 2011 REPORT**

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COMMITTEE DIRECTION – FOR DISCUSSION

The Committee will receive an update on the Southern Coastal Santa Barbara Creeks Bioassessment Program and a summary of the 2011 Report.

DISCUSSION

The Creeks Advisory Committee received a presentation on the Southern Coastal Santa Barbara Creeks Bioassessment Program in April 2011. Annual bioassessment reports are made available online (www.sbcreeks.com) and results are summarized in Creeks Division Water Quality Monitoring and Research Reports, also available on the Creeks Division website. The Committee has approved Annual Water Quality Research and Monitoring Plans, which have include a bioassessment component, for the past several years. At this point, the Committee will receive a summary of the 2011 report, which focuses on scouring effects of large rainfall during the 2010-2011 wet season, as well as the first estuarine assessment conducted by Ecology Consultants, Inc. Attached is the Executive Summary of the 2011 Bioassessment Report, prepared by the consultant.

Bioassessment is the study of the biological community in a body of water to help evaluate the health of the habitat, including water quality. The Creeks Division Research and Monitoring Program uses bioassessment to compare the condition of different creek locations, track water quality changes over time, and follow progress of creek restoration projects. Bioassessment is also used to help understand impacts of development, climate variation, and wildfire on water quality and habitat conditions in Santa Barbara creeks.

Bioassessment can be considered the third tier of analysis for understanding water quality concerns. The first tier, water-quality sampling, measures concentrations of specific chemicals that are known to harm aquatic organisms. The second tier, toxicity

testing, measures the response of a laboratory test organism (juvenile fish, invertebrates, and/or freshwater algae) to creek water samples, thereby summing the impacts of all toxic chemicals that may be present at the time of sampling. The third tier, bioassessment, quantifies the community of benthic invertebrate (BMI) organisms present in the creek to determine if water quality is impaired. Bioassessment effectively integrates the effect of potential contaminants over a period of time. Pristine sites are known to have high numbers of sensitive organisms, such as mayflies, whereas impaired sites have a higher number of organisms, such as midges, that are known to be more tolerant of pollutants.

Since 2002, the Creeks Division has utilized the services of Ecology Consultants, Inc. to conduct the field sampling, laboratory analysis, and statistical calculations required to complete bioassessment monitoring. The results are used by the consultant to generate an Index of Biological Integrity to simplify comparisons among locations and time points. Several creek sites have been monitored every year since 2001 (the County of Santa Barbara funded the 2001 study), whereas other sites have been tested for a subset of years in response to specific research questions. For the past two years, results from the City and County studies have been combined in one report for the South Coast. Estuarine sites were added in 2011 in order to assess the Mission Lagoon and Laguna Channel Restoration Project prior to, during, and after construction.

Budget

The Creeks Division has contracted with Ecology Consultants, Inc to complete sampling and analysis at eight creek sites and six estuarine sites in May 2012, for a cost of $17,000. Sufficient funds exist in the Water Quality Lab Sampling account to complete the contract.

cc: Cameron Benson, Creeks Manager
Jill E. Zachary, Assistant Parks and Recreation Director